



## METHOD OF MAKING PERCOLATION TESTS

1.—NUMBER AND LOCATION OF TESTS. A sufficient number of tests as determined from Section 122 (G) shall be made in separate test holes spaced uniformly over the proposed subsurface absorption area.

2.—TYPE OF TEST HOLE. Dig or bore a hole, with horizontal dimensions of from 4 to 12 inches and vertical sides to the depth of the proposed absorption trench. In order to save time, labor, and volume of water required per test, the holes can be bored with a 4-inch auger.

3.—PREPARATION OF TEST HOLE. Carefully scratch the bottom and sides of the hole with a knife blade or sharp-pointed instrument, in order to remove any smeared soil surfaces and to provide a natural soil interface into which water may percolate. Remove all loose material from the hole. Add 2 inches of coarse sand or fine gravel to protect the bottom from scouring and sediment.

4.—SATURATION AND SWELLING OF THE SOIL. It is important to distinguish between saturation and swelling. Saturation means that the void spaces between soil particles are full of water. This can be accomplished in a short period of time. Swelling is caused by intrusion of water into the individual soil particle. This is a slow process, especially in clay-type soil, and is the reason for requiring a prolonged soaking period.

In the conduct of the test, carefully fill the hole with clear water to a minimum depth of 12 inches over the gravel. In most soils, it is necessary to refill the hole by supplying a surplus reservoir of water, possibly by means of an automatic syphon, to keep water in the hole for at least overnight. Determine the percolation rate 24 hours after water is first added to the hole. This procedure is to insure that the soil is given ample opportunity to swell and to approach the condition it will be in during the wettest season of the year. Thus, the test will give comparable results in the same soil, whether made in a dry or in a wet season.

5.—PERCOLATION, RATE MEASUREMENT. With the exception of sandy soils, percolation-rate measurements shall be made on the day following the procedure described under item 4, above.

A. If water remains in the test hole after the overnight swelling period, adjust the depth to approximately 6 inches over the gravel. From a fixed reference point (a stick across the hole), carefully measure the time it takes for the water to drop four (4) inches.

B. If no water remains in the hole after the overnight swelling period add clear water to bring the depth of water in the hole to approximately 6 inches over the gravel. From a fixed reference point (a stick across the hole) carefully measure the time it takes for the water to drop four (4) inches.

6.—Find the percolation rate in minutes required for the water to drop one inch.

### SAMPLE CALCULATION:

It takes 40 minutes for the water to drop 4 inches, so the PERCOLATION RATE is 40 minutes divided by 4 inches equals 10 minutes per inch.

THE PERCOLATION RATE IS

$$\frac{10 \text{ minutes/inch}}{4 \text{ inches } 40 \text{ minutes}}$$